

PHY 831 : Statistical Mechanics

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Chapter 6.1-6.4

Problem

Assume that the free energy in a two-dimensional system obeys the following form,

$$F = \int d^2r \left(\frac{A}{2} \phi^2 + \frac{C}{2} \phi^6 \right)$$

Assuming that near T_c , $A \sim at$, find the critical exponent in mean field theory β where,

$$\langle \phi \rangle \sim t^\beta$$

below T_c .